RSTS-11 SIG
DECUS

OCT 1975 RSTS-11 SPECIAL INTEREST GROUP NEWSLETTER VOL.2 NO.4

FROM THE EDITOR

WELL IT IS ALMOST TIME FOR ANOTHER DECUS SYMPOSIUM. THE SCHEDULE FOR THIS ONE LOOKS LIKE THE BEST ONE EVER. IF YOU HAVEN'T EVER BEEN TO DECUS I HOPE YOU WILL TRY TO MAKE IT TO THIS ONE. FOR ME IT IS THE MOST USEFUL MEETING I CAN ATTEND. YOU CAN GET THE ANSWERS YOU CAN'T GET THRU YOUR LOCAL DEC OFFICES AND MEET OTHER USERS, WHO HAVE THE SAME PROBLEMS OR NEEDS THAT YOU HAVE AND MAY HAVE THE SOLVED THEM.

THIS NEWSLETTER IS PACKED WITH USEFUL INFORMATION, NOT THE LEAST OF WHICH IS THE LONG AWAITED ANNOUNCEMENT OF "FORTRAN" UNDER RSTS! I WOULD LIKE TO THANK ED CONVERSE, THE NEW RSTS PRODUCT MANAGER, FOR SENDING ME A COPY OF THE FORTRAN ANNOUNCEMENT TO INCLUDE IN THE NEWSLETTER.

SINCE THE LAST NEWSLETTER, I HAVE HAD THE PLEASURE OF INSTALLING A RSTS/E V6 SYSTEM IN SEATTLE. I THINK DEC SHOULD BE COMPLEMENTED -- THEY HAVE COME ALONG WAY SINCE I PUT RSTS V2 ON AN 11/20 PROCESSOR BACK IN 1971. THE MACHINE CAME IN AND WAS INSTALLED WITH NO PROBLEMS IN THREE DAYS AND I CAME IN AND WAS ABLE TO HAVE RSTS RUNNING ON THE FOURTH DAY AND IT HAS BEEN RUNNING FOR A MONTH NOW (KNOCK ON WOOD). GOOD JOB DEC.(I HOPE THIS STATEMENT ISN'T TO MUCH OF A SHOCK TO ANYONES HEART!)

BACK TO DECUS. WE NEED TO GET THE RSTS SIG MORE ACTIVE. COME TO L.A. WITH IDEAS AND READY TO WORK. SEE YOU THERE.

BOB BRANTON
R. LABAR & ASSOC.
2750 NORHTHAVEN RD., SUITE 102
DALLAS, TX 75229
(214) 243-3451

RSTS SESSIONS AT DECUS

RSTS users will find something for everyone this Fall at the 1975 Fall Symposium. New users will have an opportunity to interact with experienced RSTS users. A panel of RSTS SIG members will be available to offer suggestions, warnings and answer questions. It is intended to introduce new users to the activities of the SIG and existing user written application programs.

Barry Smith from OMSI will present a paper on the new RSTS/E run time system that can be used alongside BASIC PLUS. This system simulates Digital's stand-alone RT-11 monitor.

The RSTS SIG meeting is scheduled on Tuesday afternoon. This informal session will cover the scope of the newsletter, the user profiles, development of program standards for DECUS Library, methods to aid new RSTS users and the formation of various functional committees within the SIG. Representatives from Digital will be available during the RSTS Product Panel scheduled on Wednesday to discuss with users the current state of RSTS/E and planned enhancements and releases. Membership forms will be available during the meeting to join the SIG.

Carried over by popular demand, the RSTS Informal Discussion has been scheduled directly after the Product Panel. This session will provide the users with a forum to share ideas concerning programming techniques file structures, documentation requirements.

The Commercial RSTS SUB-SIG Meeting has been scheduled on Wednesday. Topics to be discussed will include: semi-annual meeting of Commercial RSTS Users; a Workshop on the Commercial Aspect of RSTS and problems particular to programming commercial applications under RSTS; a Commercial Swap Session.

RSTS V4 users will find a SUB-SIG Meeting scheduled on Wednesday. The meeting will continue the discussions generated in Miami of problems unique to RSTS V4 users.

Now that Digital is ending support for V4, the possibility of joint efforts of the sub-group members to maintain and modify the operating system will be discussed.

RSTS papers sessions have been scheduled all day Thursday. Individual descriptions will be printed on the formal program.

RSTS users will find Los Angeles a highly interactive meeting. Join Us!

Dear Bob:

At your request, I have enclosed a copy of our most recent announcement to the field which introduced FORTRAN IV UNDER RSTS/E.

If I can be of any further help, please feel free to contact me.

Sincerely,

Edward L. Converse
Software Product Manager

INTRODUCING FORTRAN IV UNDER RSTS/E

Steve Hort
MR2-4/M38 6861

As a result of the unanimous request from the field at our last International Sales Meeting, we are very pleased to announce that RSTS/E has been expanded to become a full-blown, multi-lingual, dedicated time-sharing system.

Now for the first time under RSTS/E DEC is offering fully supported FORTRAN IV and MACRO capabilities. RSTS FORTRAN IV is program compatible with the FORTRAN compilers available under RT-11, RSX-11M, RSX-11D and IAS operating systems.

Assembly language subprogram support is provided by the compatible MACRO assembler which is functionally identical to that released with RT-11.

In the Laboratory marketplace we usually find that an application requires high computational throughput for data analysis as well as ease of program development. Preliminary benchmark results have shown that up to a 10 to 1 performance improvement can be attained for certain types of compute-bound applications using RSTS FORTRAN IV as compared to similarly-coded BASIC-PLUS programs.

System Features:

- Entire FORTRAN system (including compiler and optimization capabilities) is completely functional in an 8K word user area.
- The FORTRAN system provides overlay support for programs and data, allowing very large programs to be executed in a small area of core.
- Output from FORTRAN programs may be in absolute binary format for execution on a satellite machine which may only contain a minimum amount of peripherals (e.g. papertape).
- All commands and user interactions are compatible with existing RSTS/E command interfaces:

  e.g. (a) FORTRAN PROG=PROG (Compile FORTRAN program "PROG")
  (b) LINK PROG=PROG/F (Produce a loadable image)
  (c) EXECUTE PROG (Run program)

- A maximum of 28K is available for a FORTRAN or MACRO program.
- Other system programs are provided for ease of program development and debugging.

(i) ODT (Octal debug package)
(ii) PATCH (Program patching utility)
(iii) LIBR (Utility for creating and updating libraries)

All the above are unctionally identical to the equivalent utilities running under RT-11.

System Restrictions:

- Assembly language subprograms may not issue any monitor calls (EMT's) and hence, may not do input/output.
- There is no support for RSTS/E monitor communication and informational functions (e.g. SYS functions as supplied with BASIC-PLUS). This support is not currently planned.
- The RSTS FORTRAN IV system does not support the DOS file structure on DECtape.
- No real-time capability is expressed or implied for RSTS FORTRAN IV.

The only major competition in the lab market for RSTS FORTRAN IV are the Hewlett-Packard HP3000 systems. RSTS FORTRAN offers almost identical language capabilities, but we offer greater accuracies for double precision floating point variables (approximately 17 decimal digits as compared to 11 for the HP3000). From the limited benchmark data currently available, RSTS FORTRAN IV should execute programs faster than the HP3000 when an 11/45 processor is used with an FP11-B. Obviously an 11/70 will be far superior in all forms of performance criteria, especially for large numbers of interactive users.

Relevant Information:

- RSTS FORTRAN IV binary license (N.B. No source license is available) — $1500
- Support Category — A
- Minimum supported hardware — RSTS/E system with 64K words of parity memory.

A Dynamic Priority Scheduler for RSTS/E V6A

Controlling the response and thru-put of a RSTS/E system in some optimal manner is a complex problem. Like most RSTS/E managers, when my system became heavily loaded, I would run PRIOR and drop the priority of heavily active jobs. This helped somewhat but required constant attention by an operator.

I recently received a write-up on a dynamic priority scheduler from my local software specialist. It was written by a Product Support specialist in Europe. After I installed the scheduler on our system, I was unsatisfied with its performance. I modified it to make it smaller and faster and to provide better response and some additional features. This modified version is DYNPRI-VERSION 1. Included with the listings is the discussion by the original author.

Several modifications were made to the original version. Only jobs of priority lower than 0 are affected. This is done so that an installation can have short, probably detached, jobs that can execute at priorities higher than standard jobs. For instance, we run ERRCPY at priority +2(+16). The longest run quantum is .5 seconds because we found that longer run quantums have a severe effect on system response time. The number of priority-run quantum pairs was cut in half because higher resolution just did not help.

A few parameters may be changed to alter the scheduler's performance. Line 1130 sets the scheduler sleep interval, which determines how often it runs. We found 5 seconds to be about right for us. Lines 8110 and 8120 are the priority-run quantum pairs that are selected by the scheduler. The variables in line 1100 need to be dimensioned to JOBMAX.

The way the scheduler works is to set each job's priority and run quantum according to the amount of run time the job received in the scheduler interval. The net effect is to bounce jobs up and down the priority-run quantum ladder. After using this scheduler for a few days, I again became unsatisfied with it and decided to implement a scheduler with more intelligence.

It did not take long to discover that there are a lot of ways to design a scheduler. A dynamic priority scheduler should be implemented as part of the monitor--not as a user job. However, a user job is currently the only way to do it in RSTS/E. The philosophy of DYNPRI-VERSION 2 is that many priority levels are unnecessary. What is needed is a better way of moving jobs up and down within a few priority levels and let the system's round-robin scheduler allocate run time at each level. In particular, if a job has been determined to be compute bound, it should stay at the compute bound priority level until some exceptional condition occurs.

Version 2 is a first attempt to do this. It utilizes three priority levels and works in the following manner. If a job at the standard level -1(-8) exceeds a certain run time in one scheduler interval, it is dropped to level -2(-16) with a longer run quantum. If it stays at level -2 for so many scheduler intervals, then it is assumed to be really compute bound and is dropped to level -3(-24) with a still longer run quantum. The only way a job can get back to level -1 is to do an I/O wait for keyboard input or output or line printer, a control/C, or a sleep.

This is still not an ideal scheduler but we have found the system's performance to be considerably better than with the Version 1 scheduler. The following parameters can be changed to vary the scheduler's performance. S% is the scheduler sleep interval (sec.). L% is the length of run time at level -1 which, if exceeded in one scheduler interval, will drop the job to level -2 (tenths of sec.). C% is the count of scheduler intervals at level -2 which, if exceeded, will drop the job to level -3. Q2% is the level -2 quantum. Q3% is the level -3 run quantum. W% is the JBWAIT mask word to test for wait conditions.

Perhaps this short discussion and listings of the two schedulers will benefit some moderate-to-heavily loaded installations. I would like to see others carry on and develop more sophisticated algorithms and present their results.

Harvey Wiggins
Callier Center for Communication Disorders
of The University of Texas at Dallas
1966 Inwood Road
Dallas, Texas 75235

PROBLEM :

Some time ago, I was consulted by a customer whose RSTS system suffers from severe response-time problems. After regenerating RSTS the "proper way", the system thru-put improved but was still not at the level the customer expected. Since RSTS is a typical time-share system, handling easily a big number of I/O bound jobs (key-board active !) it does not handle batch-jobs or other computer bound jobs the right way. It is basically not fair that RSTS allocates the same priority and run-burst to I/O bound as well as to computer bound jobs.

SOLUTION :

I wrote a program which after an adjustable "sleep time" wakes up and computes for each active job a percentage of CPU usage. This figure is then translated into an appropriate priority and by means of an adjustable factor (start params) into an appropriate run-burst.

The program runs detached under a priviledged account (1,2) using 4K of core and an average of about .8 % to 1 % CPU time (for default start parameters = 10 sec. sleep interval).

RESULT :

While running this program on several systems (all business applications running batch and inquiry programs at the same time), we experienced a shortening of the system response-time by a fairly big factor. Surprising on the other hand is that the computer bound jobs did not take very much longer for completion (5 % to 10 % or less).

THEORY :

If a computer bound job amongst many others gets pushed down in priority, it will be swapped in less often and will be skipped more often in the "who to run next" loop. In order to be fair and to cut down on the number of swappings for such a job, the "priority scheduler" will increase the run-burst. This results in a bigger system thru-put.

PRODUCT LINE	DATE	BUFFER NO.
PDP-11	Sept. 10, 1975	301
SOFTWARE PRODUCT	COMPONENT	
RSTS/E VØ6	Monitor	
AUTHOR: Beat Marti, SW Europe, Product Support		

```
DYNPR1   10:31            24-Oct-75
1000     !
         !        DYNPRI - VERSION 1
         !
1100     DIM T%(24), T1%(24), P1%(24), Q1%(24)
1110     DIM Q%(12), P%(12)
1120     DIM B%(30)
1130 S%=5%
1200     !
1205     PRINT "DETACHING..." :X$=SYS(CHR$(6%)+CHR$(7%))
1210     READ P%(I%) FOR I%=1% TO 12% :READ Q%(I%) FOR I%=1% TO 12%
1310     CHANGE SYS(CHR$(6%)+CHR$(-3%)) TO B%
         :M%=B%(11%)+SWAP%(B%(12%)) :N%=B%(4%)
1320     B%(I%)=0% FOR I%=1% TO 30%
         :B%(1%)=6% :B%(2%)=-13% :B%(4%)=-1% :B%(6%)=-1%
         :J%=PEEK(518%)/2% :P%=0% :Q%=6% :GOSUB 3110
1330     T1%(I%)=PEEK(PEEK(M%+I%*2%)+18%) FOR I%=1% TO N%
2100     !
2110     SLEEP S%
2210     FOR J%=1% TO N%
         :A%=M%+J%*2% :IF PEEK(A%)=0% GOTO 2290
         ELSE X%=PEEK(PEEK(A%)+28%) AND 255%
         :IF X%<127% GOTO 2290 ELSE P1%(J%)=X%-256%
2220     T%(J%)=PEEK(PEEK(A%)+18%) :K%=(T%(J%)-T1%(J%))/S%+1%
         :IF K%<1% GOTO 2290 ELSE P%=P%(K%) :Q%=Q%(K%)
2230     IF P%<>P1%(J%) OR Q%<>Q1%(J%) THEN GOSUB 3110
         :Q1%(J%)=Q%
2290     NEXT J%
         :T1%(I%)=T%(I%) FOR I%=1% TO N%
         :GOTO 2110
3100     !
3110     B%(3%)=J% :B%(5%)=P% :B%(7%)=Q% :CHANGE B% TO B$
         :X$=SYS(B$) :RETURN
8100     !
8110     DATA -8, -8,-16,-16,-16,-24,-24,-24,-32,-32,-32,-40
8120     DATA  6,  6, 12, 12, 18, 18, 24, 24, 30, 30, 30, 30
32767 END

Ready
```

```
DYNPR6  10:30           24-Oct-75
1000    !
        !       DYNPRI - VERSION 2
        !
1110    DIM T1%(24), C%(24)
1120    DIM Y%(30)
1200    !
1210    X$=SYS(CHR$(6%)+CHR$(7%))
1300    !
1310    CHANGE SYS(CHR$(6%)+CHR$(-3%)) TO Y%
        :M1%=Y%(11%)+SWAP%(Y%(12%)) :M2%=Y%(15%)+SWAP%(Y%(16%))
        :M3%=Y%(13%)+SWAP%(Y%(14%)) :N%=Y%(4%)
1320    Y%(I%)=0% FOR I%=1% TO 30%
        :Y%(1%)=6% :Y%(2%)=-13% :Y%(4%),Y%(6%)=-1%
        :J%=PEEK(518%)/2% :P%=0% :Q%=6% :GOSUB 7110
1400    !
1410    S%=5% :L%=5% :C%=6%
        :Q2%=12% :Q3%=18%
        :W%=10250%
2100    !
2110    SLEEP S%
2120    FOR J%=1% TO N%
        :J2%=J%+J% :A1%=M1%+J2% :IF PEEK(A1%)=0% GOTO 2910
        ELSE P1%=PEEK(PEEK(A1%)+28%) AND 248%
        :IF P1%<128% GOTO 2910 ELSE S2%=PEEK(M2%+J2%) :S3%=PEEK(M3%+J2%)
        :P%=(256%-P1%)/8% :ON P% GOTO 2210, 2410, 2610
2200    !
2210    T%=PEEK(PEEK(A1%)+18%) :IF T%-T1%(J%)<=L% GOTO 2910
        ELSE C%(J%)=0% :P%=-16% :Q%=Q2% :GOSUB 7110 :GOTO 2910
2400    !
2410    IF (S2% AND S3%)=0% THEN IF (S2% AND W%) GOTO 2620
2420    IF C%(J%)<C% THEN C%(J%)=C%(J%)+1% :GOTO 2910
2430    P%=-24% :Q%=Q3% :GOSUB 7110 :GOTO 2910
2600    !
2610    IF (S2% AND S3%)<>0% GOTO 2910 ELSE IF (S2% AND W%) GOTO 2620
        ELSE GOTO 2910
2620    T%=PEEK(PEEK(A1%)+18%) :P%=-8% :Q%=6% :GOSUB 7110
2900    !
2910    T1%(J%)=T%
        :NEXT J%
        :GOTO 2110
7100    !
7110    Y%(3%)=J% :Y%(5%)=P% :Y%(7%)=Q% :CHANGE Y% TO Y$
        :X$=SYS(Y$) :RETURN
32767 END

Ready
```

digital

INTEROFFICE MEMORANDUM

LOC/MAIL STOP

TO: Bob Branton

CC: Dick Angel
Norm Brimhall
Peter Christy
Ken Ellson
Oleh Kostetsky
Mark Levy
Frank McGowan
Tom Mitchell
John O'Rourke
Maryann Oskirko
Denny Pavlock
Larry Portner
Kathy Richer
Larry Sweeney
Peter van Roekens
Armen Varteressian

DATE: May 14, 1975
FROM: Bob Gafford
DEPT: Software Documentation
EXT: 2765
LOC/MAIL STOP: ML 5-5/E39

SUBJ: RSTS/E DECUS Session - Questions and Answers

QUESTION/COMMENT: At a previous DECUS meeting there was some discussion about DEC publishing a textbook on BASIC, not necessarily BASIC PLUS, but on the standard DEC BASIC. Has anything been done along those lines?

REPLY: The standard BASIC manual has not been written yet. We do plan to write one, but it hasn't been scheduled. The only date I can give at this time is fiscal year 1976(July 1, 1975, thru June 30, 1976).

QUESTION/COMMENT: Among the people who are working in your section, are there any who are educators, in other words, who know how to explain things? I'm referring, not to RSTS/E because I don't have it yet, I'm referring especially to the Manager's Manual for RSTS V04, which is not very well written. I refer to what was the DOS V8, which was very bad. The DOS V9 is better but too thick. What is lacking from the educator's point of view are: lots of examples; a good breaking up into relevant sections; you don't seem to have somebody in your group who can write. Most of what you write is for somebody who already knows what's going on, and it's reference material. As reference material, most of it is very very good. For the uninitiated to learn from it, it is almost impossible.

REPLY: Certainly I have people in my organization who are capable of writing documentation that can be understood by everyone. The RSTS documentation was written with the assumption that the user had a high degree of technical knowledge. We have learned that many RSTS users don't have this technical knowledge; so our documentation for RSTS is not adequate. That's why I'm here. I want to find out which types of documentation we should write, as well as which level

of user it should be written for.

QUESTION/COMMENT: Once you have it written, you have to figure out how to produce it. One of the problems we've had (we're an educational timesharing outfit) is your manuals cost $15 a set for one user. Is it possible to come up with a complete system reference manual so far as a programmer's manual that is printed on newsprint like some of your other manuals? Your manuals are very expensive, and we buy dozens of them. Can you produce them more inexpensively and sell them for a lower price, like one-third lower, for student use? The main manuals are the BASIC PLUS and System User's manuals.

REPLY: We will find some way of meeting your need for inexpensive documentation.

QUESTION/COMMENT: The current RSTS/E Manager's Guide is ok, but could stand some improvement. The first half of it, dealing with generation, is excellent. It's very easy to follow. The Manager's Guide needs to be two manuals.

REPLY: The Manager's Guide will be divided into three separate manuals for V06A: System Manager's Guide, System Generation, and Programming Manual. The Programming Manual will contain the privileged and non-privileged system calls.

QUESTION/COMMENT: You should put the sys calls back into numeric order. The current order is very poor.

REPLY: We will try to find a better ordering scheme for the next release.

QUESTION/COMMENT: I heard a rumor that there was a supplement to the Manager's Guide for VØ4. Is that correct?

REPLY: I think you are referring to the Software Support Notes (DEC-11-ORSNA-A-D). They will be released after V06A.

QUESTION/COMMENT: I call your attention to the original manuals for DIBOL which were written assuming your user was not too sophisticated. If your educator could see those, he would see that you are capable, if you feel that there is a need, of doing excellent primary instruction. If you use that manual as a format for BASIC PLUS I think you'll get pretty far off the line. I think this would be a very nice manual to have, if only on an optional basis, for those people who need an introduction before they go to a reference. It is an excellent format and the style is very good. The manual would be useful to customers in software houses, as well as students.

REPLY: Since my call for a show of hands proved that there is unanimous agreement that a Teach Yourself BASIC-PLUS manual is needed, we will seriously consider writing one this year (by July 1976).

QUESTION/COMMENT: In line with the earlier suggestion that you find a way to produce manuals to reduce cost, can you look into finding a durable paper that isn't coated stock. Coated stock is very difficult to read, particularly with the modern lighting we have in public buildings. The glare off the paper is very bad.

REPLY: The Print Department tells me that our paper is not coated. The glare is the result of the paper being very "clean" (bright white) in order to attain a quality printing job. The Print Department advises that we will lose considerable print quality if we use "dirty" (darker) paper. I will see if there is a reasonable compromise between the two types of paper.

QUESTION/COMMENT: What's the time frame for delivery of these new manuals?

REPLY: The manuals will be shipped with the verson V06A software in July/August.

QUESTION/COMMENT: I just ordered a lot of manuals. Will they be obsolete when I get them?

REPLY: The new documentation will have the current documentation as its kernel. Some manuals will be partially rewritten and/or reorganized. However, most of the documents you have ordered will still be usable for V06A.

QUESTION/COMMENT: Do you plan to prepare an addendum to give users the additional documentation they need to upgrade to V06A.

REPLY: No. You will get a complete new set of manuals for V06A. The main area of change is in the System Generation Manual for the new device support. There's new documentation for the COBOL Build procedures. Other than that the changes are minor. You can still use your V05B language manuals.

QUESTION/COMMENT: Do you have a catalog which describes the contents in 5 or 10 lines of software manuals which may, or may not, be applicable to my system?

REPLY: DEC is now producing such a manual. It is called Software Publications: A Digital Software Service. It will be available in July/August and may be ordered from the Software Distribution Center. There is no charge for this manual.

QUESTION/COMMENT: Back on this idea of low-level manuals. I need to see some simple examples of the concept that the manual is talking about that will actually run on the terminal. It can just be one or two lines.

REPLY: A lot of people have asked for more examples, and we intend to include as many as we can in our new documentation.

QUESTION/COMMENT: The examples created via LA30s don't reproduce very well and are very hard to see.

REPLY: In future manuals, we will use better LA30 output for examples.

QUESTION/COMMENT: I'd like to see the manuals produced in a more modular fashion so that two topics don't appear on one page. That way, one can pull pages out and produce an appropriate manual for certain user groups.

REPLY: That sounds like a very good idea. I will look into it. However, at first sight, it seems as though it may force our manuals to greatly expand in size which will result in high manual costs.

QUESTION/COMMENT: I see in your plans for V06A there's still a DOS/BATCH Text Editor Manual. I've got novice programmers who know they're on RSTS, and they pick that manual up and say "What's a DOS/BATCH?" They think they need a RSTS text editor, and they get confused. Can't you call it the RSTS text editor?

REPLY: We will rename it PDP-11 EDIT Programmer's Manual.

QUESTION/COMMENT: We have students who are interested in computers, but we don't have courses to introduce them to all the intricacies of a processor. You have a Processor Handbook, which is very nice for the person who has an idea of the lingo. I do not know whether there would be the market for you to actually produce a handbook in between the user's manual and the Processor Handbook. The PDP-8 Introduction to Programming is nice. I wish you would do one for the 11.

REPLY: I, too, see a definite need for that kind of documentation for the PDP-11. Currently, it is not clear that we will do one. However, we have been talking about it. In fact, I have a tentative table of contents which I will append to this report. If you like, you can critique the outline for me.

QUESTION/COMMENT: Can you tell me the difference between the RSTS/E Programming Manual and the BASIC-PLUS Language Manual?

REPLY: The Programming Manual will contain the sys calls and information on device-dependent programming in BASIC-PLUS. We will move all the system specific information into the Programming Manual and limit Language Manual to the BASIC-PLUS language.

QUESTION/COMMENT: Do you advise that for my advanced programming classes and my advanced staff members I should get both manuals?

REPLY: Yes. For advanced users, you probably need both manuals. The BASIC-PLUS Language Manual will be appropriate for novice users.

QUESTION/COMMENT: Where will the privileged system calls go?

REPLY: Plans are that they will be in the Programming Manual.

QUESTION/COMMENT: I recommend that if you put the privileged system calls in the System Manager's Guide, you also put the non-privileged over in there. If I'm sitting down to write some kind of system program, I don't want to have to flip through two manuals.

REPLY: We will include the non-privileged system calls as well as privileged system calls in the Programming Manual for V06A.

QUESTION/COMMENT: In our organization, BASIC-PLUS is being used for things we never thought it would be used for, and there doesn't seem to be any literature in the field dealing with BASIC techniques. I think there is a need for a techniques manual maybe oriented toward structured programming techniques. I'm not sure that DEC should do this. Maybe the SIG should do something.

If you sit down and use the manuals to come up with a fairly standard way of handling a programming problem, you constantly reinvent the wheel at every installation.

REPLY: Perhaps the best way to handle this would be to document the various techniques developed by SIG members and submit the documentation to DECUS. DEC's techniques are included in the sources we provide.

QUESTION/COMMENT: There is a minor frustration in the System Manager's Manual. There's a section in the back discussing error messages during generation time and during run time. Very often, the explanation just simply rewords the error message; or it will tell you "you had a HALT because of this" but there's no discussion at all of possible remedies. I understand that many times there's nothing you can do, but even knowing that there's nothing you can do but restart or regen would be helpful.

REPLY: We will definitely improve that section of the System Manager's Manual for V06A.

QUESTION/COMMENT: I'd like to see a little more discussion of hardware configuration and the way hardware affects the way RSTS runs. A second thing is to describe what software techniques affect the system. I know the system programmers learn lots of little things. There used to be a document called Core Optimization, but I haven't seen it in several years.

A perfect example of this is the COBOL manual for the PDP-10. It contains ways of optimizing programs as well as a general description of the language. I think this kind of document would be very appropriate for BASIC-PLUS.

REPLY: We will look into the feasibility of doing this for a future release.

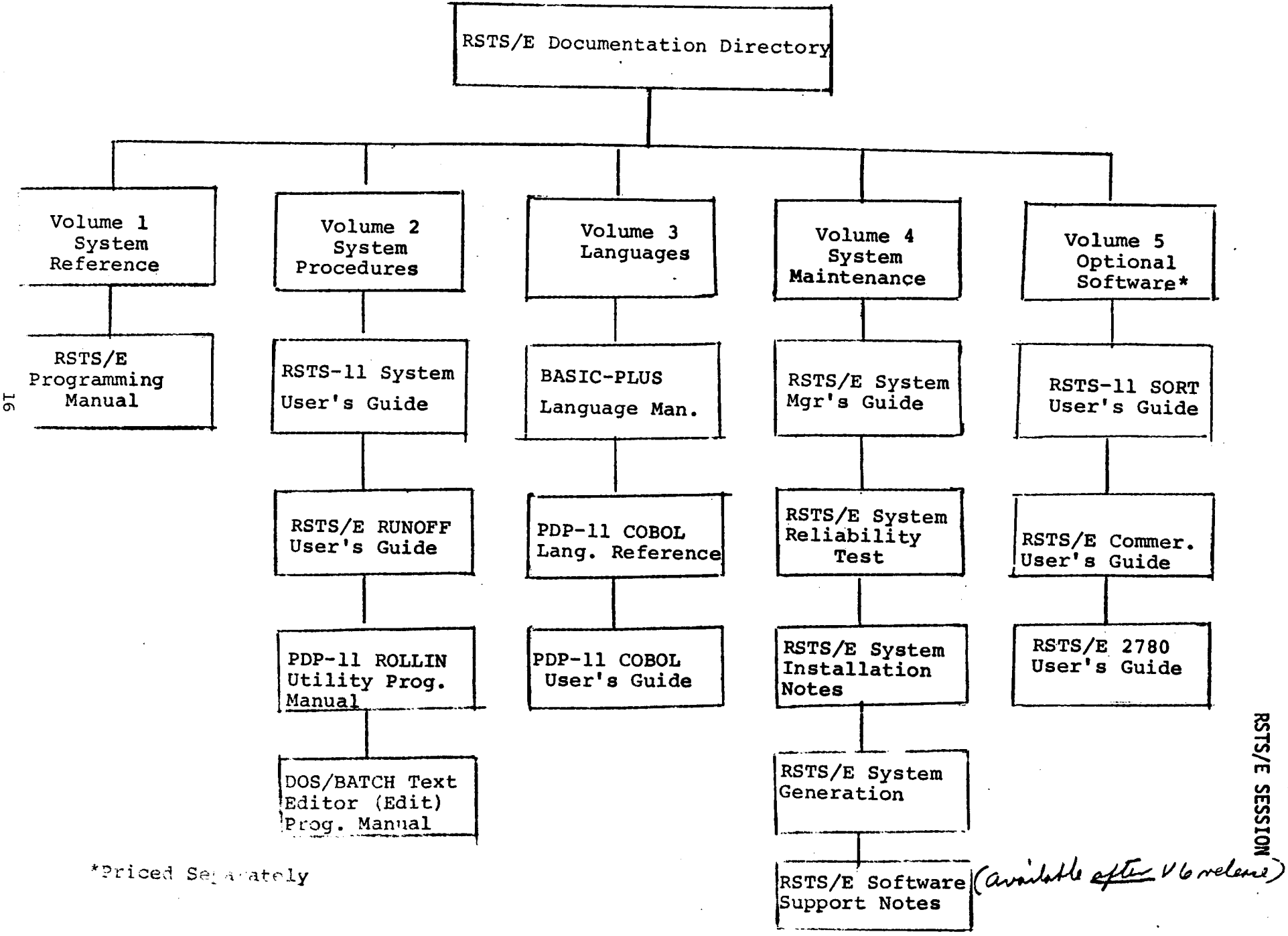
QUESTION/COMMENT: I think these manuals are used two different ways. First, to understand what's going on and, second, as a reference over and over again. I think they have to be more strongly indexed for terminology. For example, I remember one particular case. I was trying to find a multi-way GOTO. I knew it was in there somewhere, but there was no way I could find it indexed anywhere. I read the (expletive deleted) book four times over before I finally happened to find that little section hidden in there in a non-related area. So it's an awfully good idea to have strong indexing.

Cross-referencing within the text would be good. Like inside the GOTO, point them, "For multi-way GOTO, see page x."

One of my major criticisms of all the manuals is that the index is by chapter or by section number, and Section 3.1.6.2 is not on page 3.1.6.2. I can find Section 3 alright, but finding the specific subsection is hard.

REPLY: I agree that good indexes are very important. We will make every attempt to ensure that we have good, complete, accurate indexes for the VØ6 documentation. If you look at the attached VØ6 documentation schematic, you will see a Documentation Directory. The Documentation Directory is your guide to using the documentation set. It will tell you which manuals to consult for whatever type of information you're seeking. The Documentation Directory, coupled with the index at the back of each individual manual, will make the task of finding specific information much easier than it has been in the past.

I think that you are saying "index" when you mean "internal cross-reference." We have never created an index keyed on section numbers. However, we do refer to section numbers, rather than page numbers, when we make intra-manual references (cross-references). Cross-referencing by page numbers would make manual updates too tedious, time-consumimg, and costly. We are currently investigating ways to make our internal cross-referencing easier for the reader to use.



*Priced Separately

NOTICE

A GUIDE TO PROGRAMMING IN BASIC-PLUS HAS BEEN WRITTEN HERE AT LAWRENCEVILLE WITH FINANCIAL ASSISTANCE FORM THE E. E. FORD FOUNDATION AND DEC AND WAS WRITTEN TO FILL THE NEED FOR A CLASSROOM TEXTBOOK IN BASIC-PLUS.

I WOULD LIKE TO MAKE THE MANUAL AVAILABLE TO OTHER SCHOOLS AND COLLEGES USING RSTS.

BRUCE W. PRESLEY
THE LAWRENCEVILLE SCHOOL
LAWRENCEVILLE, NEW JERSEY 08648

WANTED

SCHOOL ACCOUNTING PACKAGES WRITTEN FOR RSTS.

GENE DUGGER
HARDING COLLEGE
SEARCY,ARK
(501) 268-6161 EXT 440

NYC LUG

IF YOU ARE INTERESTED IN A NYC RSTS LUG CONTACT:

JERRY MAGLIOCCA
E R SQUIBB
25 KENNEDY BLVD
EAST BRUNSWICK, NJ 08816
(201) 846-2300

NOTE: I SURE HOPE WE CAN GET A NEW YORK LUG STARTED. EVERY MONTH I GET REQUESTS ABOUT ONE, BUT IT SEEMS TO BE HARD TO EVERYONE TOGETHER. SO IF YOUR ARE INTERESTED PLEASE GET IN TOUCH WITH JERRY.

Lawrence University

Post Office Box 1847, Appleto

August 18, 1975

Mr. Robert Branton
R. Labar and Associates
2750 Northhaven
Suite 102
Dallas, Texas, 75229

Dear Bob,

Enclosed please find a letter from us to Andy Goba of Digital, who is our local software specialist. I think that its contents will be of interest to you, and possibly to the SIG membership in general.

Thank you for the Users Profiles, which arrived last week. It is really a very handsome document, and one that will get a lot of use at Lawrence, I assure you. We all owe you a big vote of thanks for the hours of labor that it must have consumed.

May I make one observation concerning both the Profiles and THE RESOURCE SHARER? It seems to me that the quality of print in portions of both could do with considerable improvement. I mean no offense by this remark; I just want to see the SIG's publications look thoroughly professional.

And a comment on Mr. Tenney's letter in the May 75 issue:

> Digital has severely lacked capable managerial personnel, especially at the middle-management level, for many years, as most of us have learned, often to our sorrow. Until recently, software support for RSTS in any variety has been, at best, poor, and for V4A it was ghastly: it was so bad as to raise the possibility of (illegal and therefore sueable) misrepresentation on Digital's part in the minds of some system managers. To be fair, I must insist that any kind of software costs money, a lot of it, to develop and maintain, and Digital must (at least) recover its costs. In my opinion, Digital seriously overestimated the (relative) sophistication of many, if not most, RSTS installations, and thus seriously underestimated the level of software expertise that it would take to furnish, and thus the money it would have to spend to keep them healthy and happy.
>
> This sorry state of affairs is hardly new to anybody who went thru (among many examples) the first release of IBM's OS, or CDC's SCOPE/INTERCOM, or PDP 10 COBOL, although that fact will be of little consolation to the tyros in the house, and is certainly no reason to take the pressure off Digital. One should never make any plans that are not bound tightly in a legal contract, and be prepared to pay for written promises stated in unambiguous terms. And then cross your fingers, for no agreement is ever completely water-tight.

To Sam Tenney, I can only say that it appears that he has been had; he is better judge than I of the degree to which he allowed himself to be, and/or created his own problems. Perhaps Digital will choose to ease his bind, but his experience will recur again and again so long as Digital and its customers rely more on acts of faith than on sound managerial judgement. Yes, it will happen to some RSTS/E sites as well. When it does, we/they can take some consolation from the fact (if it is true) that we tried to "put it in writing" and that, at least, we are not among the even less privileged (ex-)customers of RCA, Memorex, SDS, Xerox, etc., etc.

I believe Digital to be a very reputable and ethical firm. I have been long of the opinion that the general quality of code produced by Digital staff, from operating systems to applications programs, is well above the industry average in terms of efficiency, elegance and innovative design. (It is also my experience that the same "wild men" who write such code dislike bothering to document and/or otherwise support it, of course - nor do they like to write inter-office memos, hold the hands of naive users, etc., which is where much of the problem lies.) I suggest that the members of the 4A/4B community draft a spec of what they want, and ask Digital to quote a price on it; perhaps the collective cost would bearable.

You may care to know that Lawrence will release a couple of dozen useful CUSPs, applications packages, etc., to DECUS within the next ninety days. Almost all are for RSTS/E, V6A-02.

You have my permission to use any of the contents of this letter or its attachments in THE RESOURCE SHARER, if you deem it appropriate - but please do not feel under any obligation to do so.

Congratulations on your new position, and many thanks for your very hard work for the SIG.

Yours sincerely,

Michael A. Hall
Director of Computer Services

cc: Anton Chernoff, Lawrence
Scott Dicks, Digital Equipment Corporation, Milwaukee
Richard Neubauer, Digital Equipment Corporation, Milwaukee

Lawrence University

(414) 739-3681
Post Office Box 1847, Appleton, Wisconsin 54911

August 18, 1975

Mr. Andrew Goba
Senior Software Specialist
Digital Equipment Corporation
333 Bishop's Way
Brookfield, Wisconsin, 53005

Dear Andy,

This is a long-delayed response to your letter of January 28, 1975, and your verbal invitation to give you Lawrence's current thought on the quantity and quality of RSTS/E software support and quality control.

In re your letter of January 28:

1. I agree that software support has improved in the past two and one-half years.

2. Thank you for responding to the SPR's. Your information was interesting: I don't happen to agree with all of your responses, but then the matter is now somewhat moot, since we are on V6A-02 now. As an indication of the correctness of 1., however, your responses were most welcome indeed, and I was glad to learn (p. 4 of your letter) that steps have been taken to avoid such unseemly delays in the future.

In re quantity and quality:

1. Lawrence has needed very little software support since we converted to the 11/45 and RSTS/E in September, 1974, and Anton Chernoff, formerly of Digital, joined our staff. He has submitted a half-dozen SPR's, all involving non-trivial bugs; with some, he also submitted the needed patch. Response time on all SPR's this past year has been good - but the response has invariably consisted of "Will be fixed in the next release", which would have done us no good at all had Chernoff not been here to fix them for us.

2. One of these SPR's merits special attention, however. It is SPR #11-4296. I am attaching a copy of the response from Digital, which also states the problem: the BASIC-PLUS random number generator has a period of only 8192. This is a terrible error in BASIC-PLUS. It means that the validity of any serious simulation, for example, run under RSTS/E is highly questionable. I know of business firms that make multi-million dollar decisions based on such simulations. I do not know of any who are doing their simulations under RSTS/E - and I hope, for their sakes, that none of them are. The "bug" itself is a result of fantastically shoddy programming and/or quality control; it would appear that the dolt who wrote the code would have flunked a course in elementary number theory.

3. Another aspect of Digital's response to SPR #11-4296 merits attention from us and from you. It is the statement that, "Please be advised that V05B-24 is no longer supported." This is in apparent contradiction to several explicit or implicit understandings I thought we all had with Digital:

   a. By being under warranty (as we will be until December 1, 1975), I understood that we were entitled to (a) updates to RSTS/E without additional charge and (b) prompt answers to our SPR's; I have assumed (I take it wrongly) that Digital had no intention of forcing us to implement such updates. Would you not agree that there is at least the implied threat of same in the "Please be advised ..." statement?

   b. By paying (currently) $900 per year after warranty expires, I had understood that we would be entitled to exactly the same treatment. Again, would you not agree that the implied threat holds here as well?

   c. In short, just exactly what is the meaning of this (snide?) remark? Am I correct in interpreting it as meaning that, even though one may be under warranty and/or paying one's $900 per year, if one does not implement the new releases as they come out, Digital will refuse to answer (support?) one's SPR's? I can certainly imagine situations in which one might not wish to put up a new release (if it took more core, for example), and I see no reason why, if we have paid each year, that we should (or legally could) be denied the services for which we have made payment.

   d. For the record:

      1) This same remark ("Please be advised ...") appeared in Digital's answer to our SPR #11-4822 dated 26 June 1975.

      2) In THE RESOURCE SHARER, Vol. 2, No. 2 (May 1975), p. 5, the following statement was attributed to Dick Angell, RSTS Product Manager at DEC:

         "Users without a requirement for specific V5C features may opt to wait until they receive V6 to install a new system."

         And have their SPR's go unanswered as a result?

4. In general, the performance and quality of RSTS/E, V5B and V6A, has been good to excellent by comparison to the several other timesharing systems with which I am acquainted. There are certainly instances of inefficient code, and the CUSPs are particularly poorly written (Chernoff has rewritten most of them this past year) - but I've seen a lot worse.

I trust that this repsonse will make a constructive contribution to your work. Your answer to 3. above at your earliest opportunity would be much appreciated.

Yours sincerely,

Michael A. Hall
Director of Computer Services

cc: Anton Chernoff, Lawrence
Bob Branton, RSTS SIG

13 June 1975

Mr. Anton Chernoff
Lawrence University
Computer Center
Appleton, WI 54911

The following is in response to SPR #11-4296 concerning RSTS/E BASIC PLUS V05B-24.

PROBLEM:

BASIC-PLUS random number generator has a period of only 8192.

DISPOSITION:

Thank you for your SPR. This is a known problem but uncorrectable as a patch to V05C-01. The random number generator will be improved for V06A-02.

Note: Please be advised that V05B-24 is no longer supported.

For inquiries concerning the above, please contact:

Software Communications
P. O. Box F
Maynard, MA 01754

OMSI-RT Puts FORTRAN IV and MACRO-11 Under RSTS/E

OMSI-RT permits any (or all) RSTS/E users to enter an RT-11 system giving each user a virtual stand-alone PDP-11 with up to 28K words of memory.

Standard RT-11 FORTRAN IV, MACRO-11, and many other PDP-11 programs run unmodified under OMSI-RT at full machine speeds (up to 50 times faster than the BASIC-Plus interpreter).

RSTS/E users may switch back and forth between RT-11 and BASIC-Plus. FORTRAN programmers may edit, compile, debug and run FORTRAN alongside BASIC-Plus. Since FORTRAN and MACRO programs can provide much greater speeds, the computation-bound modules in a RSTS application package may be rewritten in FORTRAN or MACRO, while the interactive "front end" is best written in BASIC-Plus.

OMSI-RT is available now from OMSI for $2350, including one year's support. Users must already have RSTS/E hardware and license and must obtain an RT-11 license from DEC.

Try it now --- write or call OMSI for a demonstration account on OMSI's system and for additional information, including a benchmark study:

Rusty Whitney
OMSI Computing
4015 S.W. Canyon Rd.
Portland, Oregon 97221
(503) 248-5903

RSTS Marketplace

DESCRIPTION	CONTACT
1.) A virtual sort subroutine for sorting up to 32,000 records for all files (include virtual) 2.) An easy to use line editor for editing program or ASCII data files. (automatic verification) 3.) A management information system for RSTS 4.) A jobshop scheduler for the allocation of labor and materials in manufacturing or maintenance 5.) A complete general ledger accounting system includes balance sheet, statements, journals and schedules such as accounts payable. 6.) An interactive payroll package with 941 & W-2. 7.) A complete automotive agency accounting system for GM, FORD and other dealers. An on-line system. 8.) A package of real estate programs - includes amortization schedules, data retrieval and others. 9.) Financial package for bidding and printing holdings of municipal and government bonds.	Al Cordes Houston Timesharing 9039 Katy Freeway #404 Houston, Texas 77024 713-461-5437
1.) Subroutines to phonetically code last names for storage and retrieval via standard phonetic techniques. 2.) Screen generator programs for the Tektronix 4023 buffered CRT terminal. 3.) Complete letter writing system using paragraph/letter files to build custom upper/lower case letters from form paragraphs. System allows insertions as well as a user composed paragraph..	Murray Stinson Scientific Placement, Inc. 2700 South Post Oak, #2430 Houston, Texas 77027 713-621-9811
Multiple languages can be used with RSTS/E if you have OMSI's RT-11 emulator. OMSI-RT supports MCRO-11, OMSI APL, and other languages, in addition to DEC FORTRAN IV. 64K words of memory are recommended, but there are several 48K users.	Rusty Whitney OMSI Computing 4015 S.W. Canyon Rd. Portland, Oregon 97221 503-248-5903
1.) A consolidating Accounts Payable, General Ledger, Financial Statement package. 2.) A Payroll and Labor Distribution package. 3.) An Accounts Receivable and Sales Distribution package.	Jack Bouknight Plycom Services P. O. Box 160 Plymouth, Indiana 46563 219-936-2183

Commercial RSTS User Group Newsletter

The response to our call for participation in the group has still not been overwhelming, but I am beginning to see a trickle. I have received two more entries for the RSTS Marketplace, but I'm sure there has to be more software out there that can be shared. Hopefully, the Los Angeles meeting will help solidify us more and encourage more users to participate. Also, please let me know if any local SIGS are forming, and how you are doing.

Included below is an announcement from Stu Katz concerning the arrangements in L.A. Please read it and come to the meeting if at all possible.

Again, please send your problems, solutions, products, information, etc., to:

Murray Stinson
Scientific Placement, Inc.
2700 South Post Oak Road, Suite 2430
Houston, Texas 77027
713-621-9811

To All Commercial RSTS Sig Users:

The Commercial RSTS Sub Sig has been allocated a time slot of an hour and a half at the Fall Symposium. Though this time period is shorter than we had hoped, we are glad that the symposium committee alloted this time to us. We intend to provide as complete a program as possible within this time frame. There will be a short forum to discuss organizational problems within the Commercial Sub Sig. We hope to hold this period to a minimum so we can best use the time to get into the discussion of particular RSTS problems.

We are presently scheduling two users as speakers. One will be a representative of a large installation, covering the aspects of operating with relatively unlimited resources, and one will be a representative of a smaller installation, with a relatively tight budget. We also hope to schedule a short period to discuss the continual problem of remote terminal printers which are becoming more relevant to Commercial RSTS installations. This discussion was begun in Miami and we hope to input certain examples from systems which have been installed since then.

We also plan one other speaker, an end user who has an accountant's viewpoint as comptroller of a large corporation, utilizing RSTS. We hope that this speaker will be able to provide a non-computer view to some of our discussions regarding RSTS. This speaker hopefully will approach some of the concerns that we all have toward proper accounting procedures in installing RSTS systems, and also some of the problems he has encountered with data processing groups which have provided service to his company.

As you can see we have attempted to jam as much as possible into the time slot, but we seriously anticipate that this will only scratch the surface. For this reason we are encouraging many non-scheduled "bull sessions" to further explore the multitude of problems we all have. Remember that a symposium like these that are held semi-annually, are only as successful as the members who attend. We need your attendance, your input and participation in order to have both a successful symposium and a successful user group. See you in Los Angeles!

Stuart M. Katz
Chairman, Commercial RSTS Sub Sig

* * * RSTS V4 USERS * * *

I have compiled the following list of V4 users from the responses to the May 75 newsletter. If you know of others please notify DECUS or me (#1 below).

(1) ROY H. SWATZELL, JR.
V.A. Hospital
700 S. 19th St.
Birmingham, Al. 35233
Ph: 205 933-8101, ext. 239

(2) ALPHA COMPANY, INC.
30 West First Street
Mesa, Arizona 85201
Ph: 602 834-1588

(3) MS SAM WERBACK
Nat'l Council on Crime
and Delinquency
609 2nd St., Suite D
Davis, Calif. 95616
Ph: 916 756-5544

(4) WAYNE WEVER
International Harvester Co.
2911 Meyer Road
Fort Wayne, Indiana
Ph: 219 461-5721

(5) WAYNE MELLINGER
53 Circle Drive
West Springfield
Mass. 01089

(6) CARL HENRY
Assoc. Dir. of Comp. Activities
Northfield, Minn. 55057
Ph: 507 645-4431, ext. 504

(7) MRS. SUSAN WOOD
Delafield Harvey Tabell
909 State Road
Princeton, N.J. 08540
Ph: 603 924-9660

(8) MARILYN J. SPENCER
Ridgewood High School
627 E. Ridgewood Ave.
Ridgewood, N.J. 07451
Ph: 201 444-9600, ext. 375

(9) HAROLD MODELL, Ph.D.
Physiology Dept.
State Univ. of N.Y. at Buffalo
Buffalo, N.Y. 14214
Ph: 716 831-5463

(10) TERRY GATTIS
6585th Test Group USAF
1842 Lamar Circle
Alamogordo N.Mex. 88310
Ph: 505 437-7993

(11) FRANK H. ROBISON
Daytronic Corporation
2875 Culver Avenue
Dayton, Ohio 45429
Ph: 513 298-7542

(12) J. M. ARNOLD, Ph. D.
Dept. of Scientific Computing
Cleveland Clinic Foundation
9500 Euclid Avenue
Cleveland, Ohio 44106
Ph: 216 229-2200, Ext. 2704

(13) JOHN D. WELLARD
Director of Data Processing
Bethel Park School District
301 Church Road
Bethel Park, Penna. 15201
Ph: 412 833-5000

(14) JAMES B. WILKINSON
Erskine College
Due West, S.C. 29639
Ph: 803 379-2131

(15) STEPHEN KETCHAM
North County Union High School
Newport, Vt. 05855
Ph: 802 334-7921

(16) GORDON G. JONES
U. W. - Stout
Menomonie, Wis. 54751
Ph: 715 232-1391

(17) PROF. F. J. LOFY
Dir. Computer Center, U. of Wis..
Platteville, Wis. 53818
Ph: 608 342-1421

(18) D. W. TAYLOR
Dept. of Computer Science
Loughborough Univ. of Technology
Loughborough, Leicestershire
England

(19) MR. R. BUXTON
Dept. of Chemical Engineering
Loughborough Univ. of Tech.
Loughborough, Leicestershire
England

(20) MR. HENRY LAM
Manager, Technical Support
c/o Quantum Information Resources Ltd.
Suite 2080, Place du Canada
Montreal, Quebec
PR: 514 878-1741

The responses were overwhelmingly in favor of the release of V4 listing, but to date there has been no official statement from DEC that I am aware of.

* * * HELP WANTED * * *

If you have any specific software needs please notify me and I will include them in this portion of the newsletter.

I am looking for software to support an RP type disk that will run under RSTS V4.

* * * * FALL SYMPOSIUM * * * *

There will be a session for the V4 RSTS users on Wednesday, 3 December, 3:15 - 5:15 PM. Come if you can.

DECUS

DIGITAL EQUIPMENT COMPUTER USERS SOCIETY
MAYNARD, MASSACHUSETTS 01754

ADDRESS CORRECTION REQUESTED